



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,423	09/24/2003	George Connors	1870-332	5807
757	7590	11/13/2006	EXAMINER	
BRINKS HOFER GILSON & LIONE			LIN, ING HOUR	
P.O. BOX 10395			ART UNIT	
CHICAGO, IL 60610			PAPER NUMBER	

1725

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/671,423

Applicant(s)

CONNORS ET AL.

Examiner

Ing-Hour Lin

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 43-49, 51-62, and 64-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore, Jr. et al in view of Doles.

Moore, Jr. et al (col. 2, lines 35+) substantially teach the claimed slurry composition for making a mold including alumina and colloidal silica with a single coat (flask or bottle technique) (col. 9, lines 12+). Moore, Jr. et al fail to teach the use of silicon carbide, setting

Art Unit: 1725

agent and polysaccharide gum in the slurry composition.

However, Doles (col. 4, lines 60+) teaches the use of slurry, comprising silicon carbide, setting agent such as magnesia, alumina and silica including fumed silica, wherein each composition has size and weight%, free carbon in the form of graphite, polypropylene fiber, and suspension agent or additive such as polysaccharide gum (xanthan gum, which is a commercially available polysaccharide obtained by fermentation of carbon source), for the purpose of controlling slurry composition for making an investment mold wherein the cooling rate of casting can be controlled. It would have been obvious to one having ordinary skill in the art to provide Moore, Jr. et al the use of the use of silicon carbide, setting agent and polysaccharide gum for the slurry composition as taught by Doles in order to control casting cooling in an investment mold.

Regarding claims 48, 69 and 77, Moore, Jr. et al in view of Doles fails to teach a particular size distribution of alumina. However, the use of the alumina component comprising particles of screen size 6x14, 14x70 and -70 having a particular weight % distribution would have been obvious to one having ordinary skill in the art for the purpose of effectively improving adhesion, plasticity and setting time and obtaining a single coat in making the investment mold.

3. Claims 50 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore, Jr. et al in view of Doles and further in view of Schramm.

Moore, Jr. et al view of Doles fails to teach the use of free carbon in the form of pitch or petroleum pitch. However, Schramm (col. 2, lines 39+) teaches the use of free carbon in the form of pitch or petroleum pitch for the purpose of substituting graphite and effectively reducing cost in making investment mold. It would have been obvious to one having ordinary skill in the art to provide Moore, Jr. et al in view of Doles the use of free carbon in the form of pitch or

Art Unit: 1725

petroleum pitch as taught by Schramm in order to substitute graphite and effectively reducing cost in making investment mold.

Response to Arguments

4. Applicant's arguments with respect to claims 43-78 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

I-H. Lin
I.-H. Lin

11/9/06

KEVIN KERNS
PRIMA EXAMINER

Kevin Kerns 11/9/06